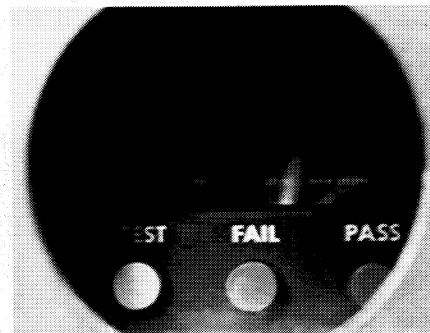


## Drunk Driver Testing

In the mid-1960s, preparing for long duration space missions of the future, NASA conducted a test—performed by McDonnell Douglas Astronautics Company—in which four men were sealed in a realistically simulated space station for 90 days. The experiment had dual purpose: testing the components of an advanced life support system, and obtaining data on the physiological and psychological effects of long confinement. Of particular importance was measurement of the subjects' abilities to perform certain tasks and determination of how much their abilities were impaired



by long term isolation. For these behavioral measurements, Ames Research Center contracted with Systems Technology, Inc., Hawthorne, California for preparation of a series of "tracking tasks" to be accomplished by the subjects and for development of an electronic system for analyzing and rating the subjects' visual/motor responses.

Almost two decades later, that technology has turned up in a system for determining whether a driver is too drunk to drive. Under contract to the National Highway Traffic Safety Administration (NHTSA) of the Department of Transportation, Systems Technology produced a variant of the NASA Critical Tracking Task (CTT) device, the testing component of a Drunk Driver Warning System (DDWS). Last year it was tested experimentally in California; in two of the state's counties, twice-convicted drunk drivers were given a choice of operating a DDWS-equipped test car for six months or taking an alternative sentence involving a fine and treatment.

The device is intended to discourage intoxicated drivers from taking to the road by advising them they are in no condition to operate a vehicle; if they drive

anyway, the DDWS system warns police and other drivers. Mounted on the steering column directly in front of the driver (above left), the CTT device tests eye-to-hand coordination and reaction time. When the driver turns on the ignition, the car's hazard lights start blinking; to turn them off he has to pass the test. The test involves watching a needle (above right) on the CTT and keeping it centered—by turning the steering wheel—for less than a minute. It sounds easy, but tests have shown a high failure rate for drivers with blood alcohol concentrations above 0.10 percent.

If the driver fails the test or does not take it and elects to drive anyway, the hazard lights will continue to flash on and off and, in addition, the horn will blow once every second, a clear signal to police and potential victims. In the California experiment, the test cars were also equipped with a monitor that recorded when the ignition was turned on, whether the driver passed the test, and whether the car was driven after a test failure, and at what speed. These records were studied by project personnel every two weeks and the performance of the drivers was analyzed. Study findings are being evaluated by NHTSA.